REMARKS

The specification is amended to identify the claimed "thickness of a circumferential part" as depicted in the drawings. The amendment is for clarification only and does not alter the scope of the disclosure. Accordingly, the amendment does not add new matter.

Claims 1, 3-5, 9, 10, 12, 13 and 16 are amended herein. Support the amendment to Claims 1, 13 and 16 is found in the specification, for example, at original Claim 12 and in the Figures. Claims 3-5 and 10 are amended for clarity without altering the scope of the claims. Claim 9 is amended for clarity. Support for the amendment to Claim 9 is found in the specification, for example, at paragraph [0053] and Figure 5. Claim 12 is amended in view of the amendment to Claim 1. The amendments do not add new matter.

Objection to the Drawings

The drawings are objected to for failing to identify the term "thickness of a circumferential part" recited in Claim 9. The specification, at paragraph [0053] is amended to clarify the structure shown in Figure 5. The amendment to the specification now identifies the disclosure in the drawings that correspond to the language of Claim 9. In view of the amendment to the specification, Applicants submit that the objection to the drawings is moot, and respectfully request removal of the objection of the drawings.

Objection to the Claims

Claims 3 and 4 are objected to for containing language informalities. Claims 3 and 4 are amended as suggested in the Office Action. In view of the amendment, Applicants respectfully request removal of the objection of the claims.

Rejection of Claim 9 under 35 U.S.C. §112, First Paragraph - Enablement

Claim 9 is rejected under 35 U.S.C. §112, first paragraph, as lacking enablement. The Office Action indicates that the specification teaches only that one circumferential part can be greater than the other circumferential part.

Claim 9 and the specification are amended herein to more clearly indicate that which is being claimed and described. In particular, Claim 9 is amended to indicate that the a thickness of a circumferential part of at least one of the anode-side metal plate and the cathode-side metal plate is

made smaller by etching than a thickness of a part of the respective anode-side metal plate or cathode-side metal plate contacting the solid polymer electrolyte. This is clearly depicted in Figure 5 and in the specification, at paragraph [0053], as amended.

In view of the amendments to Claim 9 and the specification, Applicants submit that the specification fully enables one skilled in the art to practice the invention of Claim 9 without undue experimentation. Accordingly, Applicants respectfully request removal of this rejection of Claim 9.

Rejection of Claims 5, 9, 10 and 12 under 35 U.S.C. §112, Second Paragraph

Claims 5, 9, 10 and 12 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Regarding Claim 5, the Office Action states that recitation of "a metal plate" is unclear as to the relationship between the metal plate recited in Claim 1 and the metal plate recited in Claim 5. Claim 5 is amended herein to recite "the metal plate," and to thereby establish that the metal plate of Claim 5 relies on the antecedent metal plate recited in Claim 1. In view of the amendment, Applicants respectfully request removal of the rejection of Claim 5.

Regarding Claim 9, the Office Action states that the recitation of "other part" is unclear. Claim 9 is amended to more clearly indicate the part of the metal plate being compared to the circumferential part. In view of the amendment, Applicants respectfully request removal of the rejection of Claim 9.

Regarding Claim 10, the Office Action states that "supplying oxygen in the air" is unclear. Claim 10 is amended to clarify that the oxygen-containing air is supplied. In view of the amendment, Applicants respectfully request removal of the rejection of Claim 10.

Regarding Claim 12, the Office Action states that "an external circumferential part of one metal plate is greater than ..." is unclear. The objected-to language of Claim 12 is deleted from Claim 12. Accordingly, this rejection is moot.

Rejection of Claims 1, 7, 9 and 12 under 35 U.S.C. §102(b)

Claims 1, 7, 9 and 12 are rejected under 35 U.S.C. §102(b) as being anticipated by Brückner (US Pub No 2002/0015873).

Claim 1 is novel over Brückner because Brückner does not disclose a fuel cell having a structure in which an external circumferential part of one metal plate is greater in width than an

external circumferential part of the other metal plate, and an external circumferential part of the one metal plate is turned up so as to holding-press an external circumferential part of the other metal plate, so that the circumferential part of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Accordingly, Claims 1, 7, 9 and 12 are novel over Brückner.

The structure disclosed in Brückner has a problem in that the both terminal plates 1 contact each other and cause a short circuit. In addition, in Brückner's structure, contact force between the terminal plate 1 and electrode 2 is so weak that electric power can't be fully conducted by the terminal plate 1. In contrast, in the presently claimed structure, for example shown in Fig. 2, an external circumferential part of the one metal plate is turned up so as to holding-press an external circumferential part of the other metal plate, so that the contact force becomes so strong that the electric power becomes high. The circumferences of the metal plates are mechanically sealed by, for example, bending press in the state where they are electrically insulated, as shown for example in Fig. 2 or Fig 12, so that a short circuit is not likely to occur. The circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates, therefore, a gas leak along the surface of the electrolyte also is unlikely to occur.

In contrast, Brückner teaches an important feature of Brückner's invention is that the edge of each terminal plate is individually "hooked into the edge of the membrane" to seal the gas space. *Brückner* at Abstract. Brückner does not teach an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. In contrast, Brückner teaches the advantage of each terminal plate being individually hooked into the edge of the membrane. *Brückner* at paragraphs [0011]-[0017]. Further Brückner teaches that Brückner's structure maintains a uniform, symmetrical structure. *Brückner* at paragraph [0028]. In order to arrive at the asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates in accordance with the present claims, it is necessary for one skilled in the art to proceed contrary to the teachings of Brückner. Accordingly, Brückner teaches away from the presently claimed invention. As such, the claims are novel and non-obvious over the teachings of Brückner. In view of the above, Applicants respectfully request removal of the rejection of Claims 1, 7, 9 and 12.

Rejection of Claims 3-6 and 10 under 35 U.S.C. §103

Claims 3-6 and 10 are rejected under 35 U.S.C. §103 as being obvious over Brückner in view of in view of Wilkinson (US Pat No 5,432,021). The Office Action states that Wilkinson teaches flow path grooves on both anode and cathode external surfaces, and that the openings direct fuel and oxygen are to the electrodes.

Claims 3-6 and 10 are non-obvious over the cited references because no combination of Brückner and Wilkinson teach all elements of the claims and because Brückner teaches away from the claims. Claims 3-6 and 10 depend from Claim 1. As discussed above, Brückner does not teach all elements of Claim 1 and teaches away from an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Wilkinson does not provide that which is lacking in Brückner. Wilkinson teaches a method and apparatus for oxizing carbon monoxide in the reactant stream of a fuel cell. However, Wilkinson does not teach an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Accordingly, no combination of Brückner and Wilkinson teach all elements of the claims, and no teaching of Wilkinson overcomes the teachings away from the present claims by Brückner. In view of the above, Applicants respectfully request removal of the rejection of Claims 3-6 and 10.

Rejection of Claims 8, 11 and 13-15 under 35 U.S.C. §103

Claims 8, 11 and 13-15 are rejected under 35 U.S.C. §103 as being obvious over Brückner in view of Allen (US Pat No 6,777,126). The Office Action states that Allen teaches a gasket to provide a seal for a crimped corner of a gas chamber.

Claims 8 and 11 are non-obvious over the cited references because no combination of Brückner and Allen teach all elements of the claims and because Brückner teaches away from the claims. Claims 8 and 11 depend from Claim 1. As discussed above, Brückner does not teach all elements of Claim 1 and teaches away from an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Allen does not provide that which is lacking in Brückner. Allen teaches a fuel cell biopolar separator plate. However, Allen does not teach an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal

plates. Accordingly, no combination of Brückner and Allen teach all elements of the claims, and no teaching of Allen overcomes the teachings away from the present claims by Brückner.

Further, Claims 13-15 are non-obvious over the cited references because no combination of Brückner and Allen teach all elements of the claims and because Brückner teaches away from the claims. Brückner does not teach all elements of Claim 13. In particular, Brückner does not teach metal plates comprising circumferential parts extending to and sandwiching the protruding part of a parameter of a solid polymer electrolyte, wherein a circumferential part of one of the cathode-side electrode plate or anode-side electrode plate extends beyond the circumferential part of the other electrode plate. In fact, as discussed above Brückner teaches an important feature of Brückner's invention is that the edge of each terminal plate is individually "hooked into the edge of the membrane" to seal the gas space, providing particular advantages, and Brückner teaches that Brückner's structure maintains a uniform, symmetrical structure. *Brückner* at Abstract and paragraphs [0011]-[0017] and [0028]. As such, Brückner fails to teach all elements of Claim 13 and teaches away from an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Allen does not provide that which is lacking in Brückner. Allen teaches a fuel cell biopolar separator plate. However, Allen does not teach an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Accordingly, no combination of Brückner and Allen teach all elements of the claims, and no teaching of Allen overcomes the teachings away from the present claims by Brückner.

In view of the above, Applicants respectfully request removal of the rejection of Claims 8, 11 and 13-15.

Rejection of Claims 16 and 17 under 35 U.S.C. §103

Claims 16 and 17 are rejected under 35 U.S.C. §103 as being obvious over Brückner in view of Wilkinson and Allen. The Office Action states that Brückner teaches applying bending pressure to metal, and Allen teaches forming sheet materials into complex shapes.

Claims 16 and 17 are non-obvious over the cited references because no combination of Brückner, Wilkinson and Allen teach all elements of the claims and because Brückner teaches away from the claims. Brückner does not teach all elements of Claim 16. In particular, Brückner does not teach metal plates comprising circumferential parts extending to and

sandwiching the protruding part of a parameter of a solid polymer electrolyte, wherein a circumferential part of one of the cathode-side electrode plate or anode-side electrode plate extends beyond the circumferential part of the other electrode plate. In fact, as discussed above Brückner teaches an important feature of Brückner's invention is that the edge of each terminal plate is individually "hooked into the edge of the membrane" to seal the gas space, providing particular advantages, and Brückner teaches that Brückner's structure maintains a uniform, symmetrical structure. *Brückner* at Abstract and paragraphs [0011]-[0017] and [0028]. As such, Brückner fails to teach all elements of Claim 16 and teaches away from an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Wilkinson and Allen do not provide that which is lacking in Brückner. Wilkinson teaches a method and apparatus for oxizing carbon monoxide in the reactant stream of a fuel cell. However, Wilkinson does not teach an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Accordingly, no combination of Brückner and Wilkinson teach all elements of the claims, and no teaching of Wilkinson overcomes the teachings away from the present claims by Brückner. Allen teaches a fuel cell biopolar separator plate. However, Allen does not teach an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Accordingly, no combination of Brückner, Wilkinson and Allen teach all elements of the claims, and no teaching of Allen overcomes the teachings away from the present claims by Brückner. In view of the above, Applicants respectfully request removal of the rejection of Claims 16 and 17.

Rejection of Claims 18-20 under 35 U.S.C. §103

Claims 18-20 are rejected under 35 U.S.C. §103 as being obvious over Brückner in view of Wilkinson, Allen and Pratt (US Pat No 6,132,895). The Office Action states that Pratt teaches chemical etching to form channels that aid in gas flow.

Claims 18-20 are non-obvious over the cited references because no combination of Brückner, Wilkinson, Allen and Pratt teach all elements of the claims and because Brückner teaches away from the claims. Claims 18-20 depend from Claim 16. As discussed above, Brückner, Wilkinson and Allen does not teach all elements of Claim 16 and teaches away from an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed

by the opposite parts of the metal plates. Pratt does not provide that which is lacking in Brückner, Wilkinson and Allen. Pratt teaches a fuel cell formed by stacking a plurality of membrane electrode assemblies. However, Pratt does not teach an asymmetric structure in which the circumferential pad of the solid polymer electrolyte is pressed by the opposite parts of the metal plates. Accordingly, no combination of Brückner, Wilkinson, Allen and Pratt teach all elements of the claims, and no teaching of Wilkinson, Allen and Pratt overcomes the teachings away from the present claims by Brückner. In view of the above, Applicants respectfully request removal of the rejection of Claims 18-20.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

Should the Examiner have any questions concerning this amendment, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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